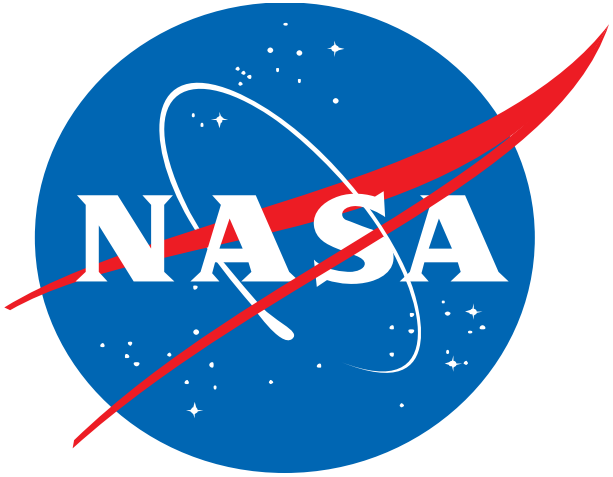
AIAA 92nd TETWOG, Atlanta, GA, Nov. 13-14, 2014

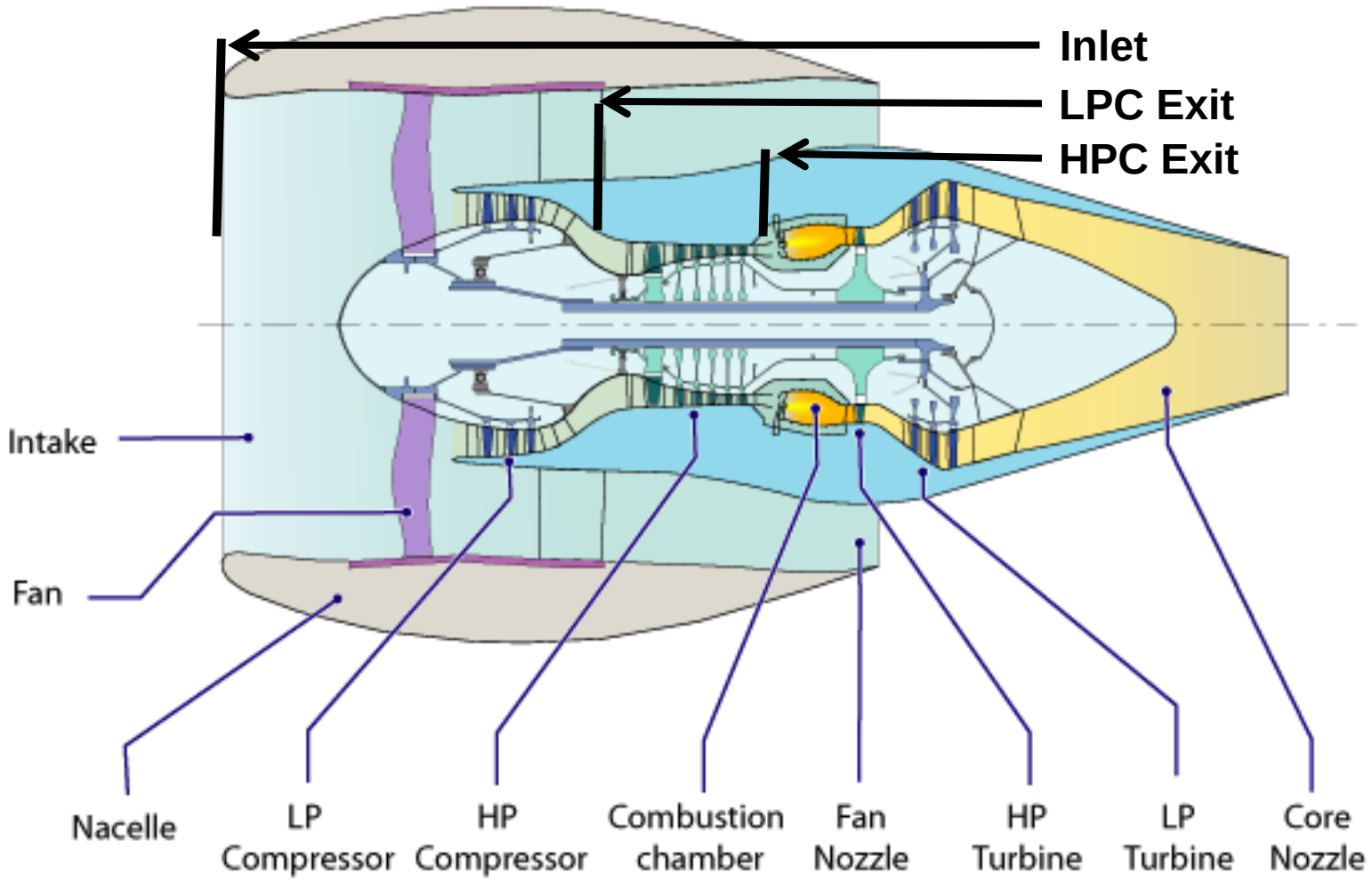
NASA Glenn Research Center, Propulsion Systems Laboratory: Plan to measure engine core flow water vapor content



Michael Oliver
NASA Glenn Research Center
Wind Tunnel and Propulsion Test Branch

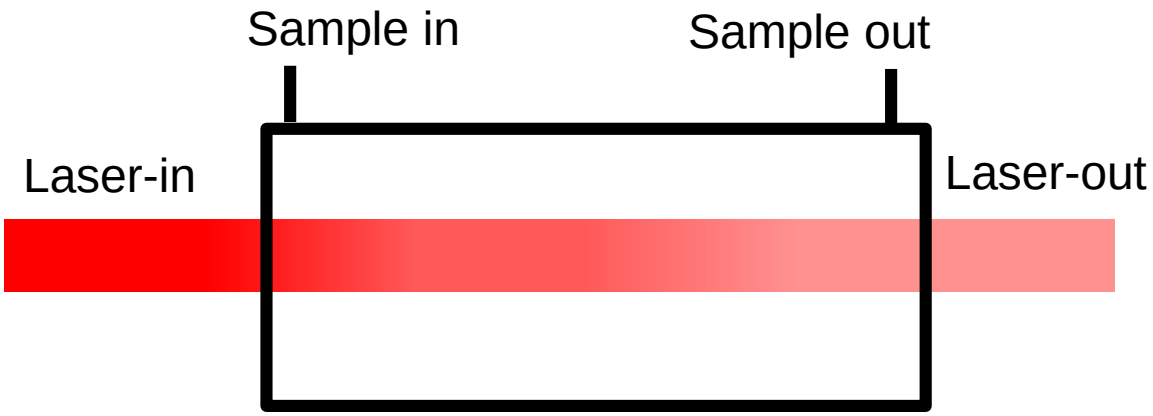
Flow Path Schematic

Air Sample Locations



Tunable Diode Laser Absorption Spectroscopy

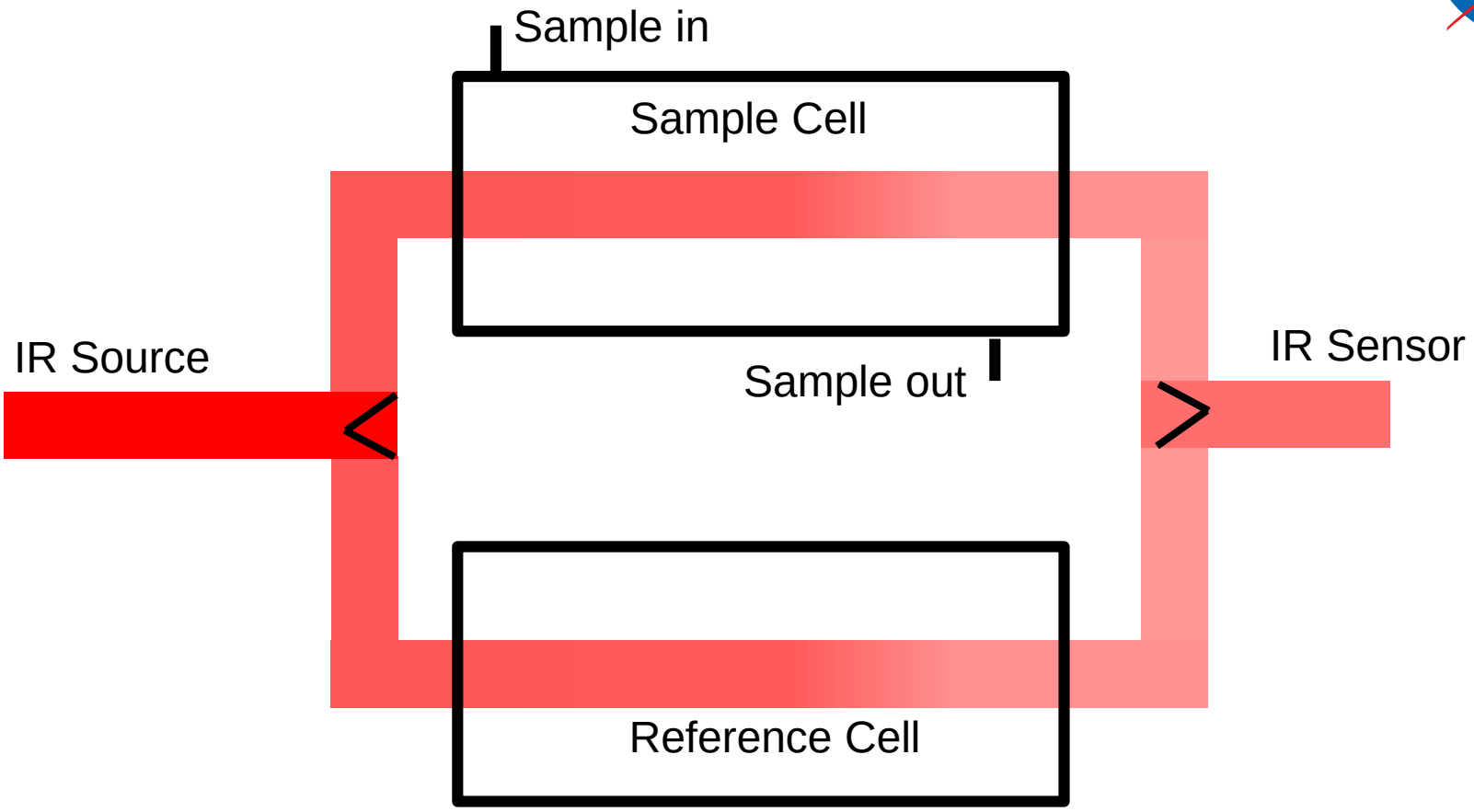
Based on Beer Lambert Law:



Laser beam Intensity reduced: water vapor absorbs radiant energy from beam

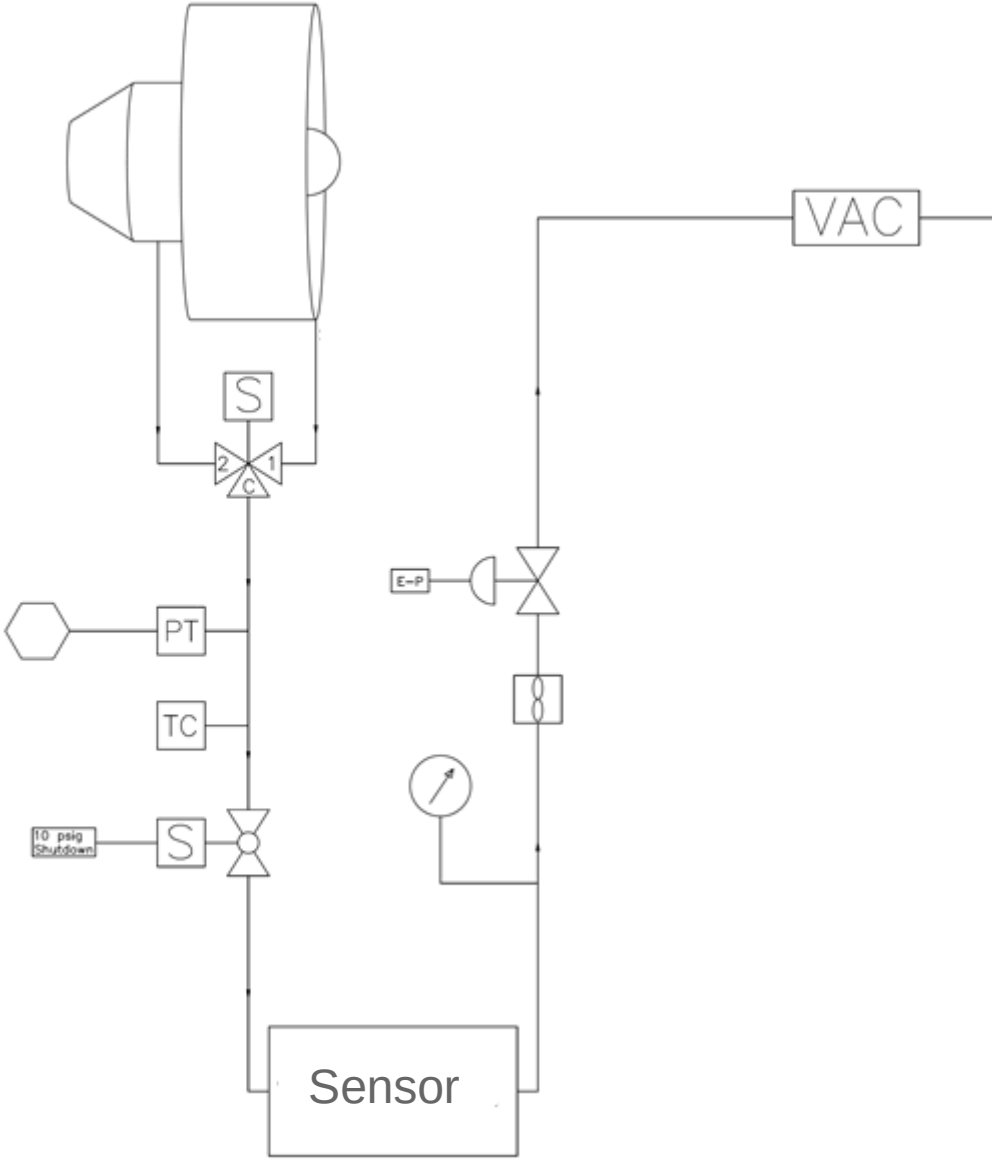
Concentration of the water vapor in sample is proportional to the difference between incoming and out going intensity of laser beam

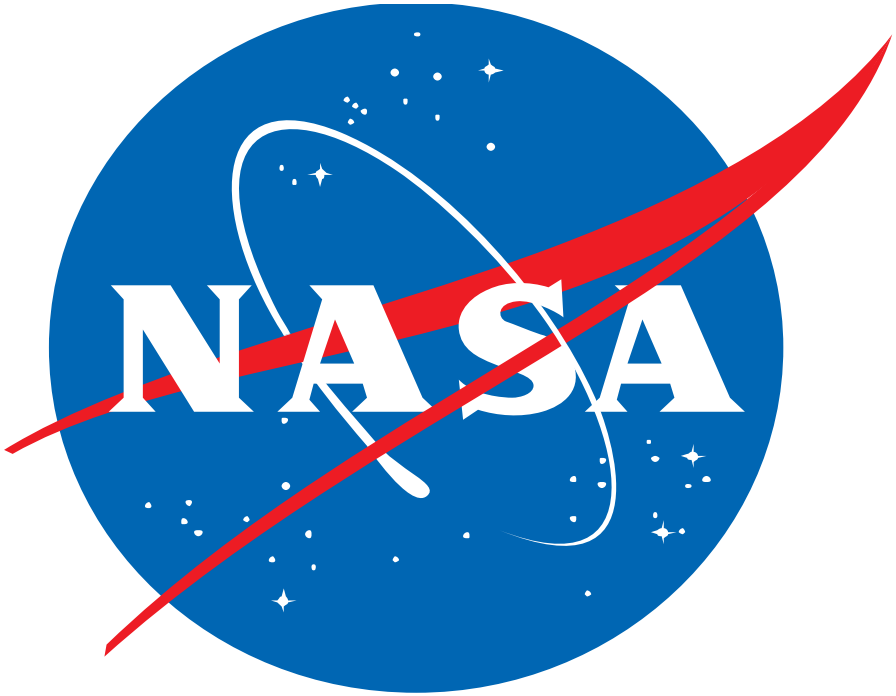
Infrared Absorption Spectroscopy



Concentration of the water vapor in sample is proportional to the difference between incoming and out going IR energy

Plumbing Schematic





Questions
or
Comments